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10/723,181	11/26/2003	Tony F. Rodriguez	P0912	5733
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DIGIMARC CORPORATION			EXAMINER	
9405 SW GEMINI DRIVE			KAU, STEVEN Y	
BEAVERTON, OR 97008				
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			12/19/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/723,181

**Applicant(s)**

RODRIGUEZ ET AL.

**Examiner**

STEVEN KAU

**Art Unit**

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 October 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-21 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/5508)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

Applicant's amendment was received on 10/6/2008 been entered and made of record. Currently, claims 1-21 are pending for further examination in this Action.

***Response to Remark/Arguments***

Applicant's arguments with respect to claims 1-21 have been fully considered but are not persuasive and the reply to the Remarks/Arguments is in the following:

Applicant's arguments in the Remarks, "The Office appears to have overlooked that priority is claimed to application 09/234,780 through application 10/012,703, filed December 7, 2001, and issued on 6/1/04 (6,744,906), and application 09/433,104, filed November 3, 1999, and issued on 10/23/2003. Parent application 09/433,104 was filed prior to the abandonment of 09/234,780. Therefore, the co-pendency requirement is met.

The Office further contends that the co-pendency requirement is not satisfied for 60/071,983. However, as shown above, priority is properly claimed to 60/071,983 through a chain of co-pending applications, and therefore, the co-pendency requirement is met. Specifically, 09/234,780 is the non-provisional application that claims priority to 60/071,983. As shown above, priority is properly claimed to 09/234,780, and application

09/234,780 was filed within one year of 60/071,983. Since the co-pendency requirement is satisfied for each link in the chain of priority back to 60/071,983, the co-pendency requirement has been satisfied", page 2, Remarks.

In re, applicant's arguments have been fully considered but they are not persuasive. The examiner has carefully reviewed the application filing records and US patent laws and requirements, and the explanation is as follows:

**1. 35 U.S.C. 120 Benefit of earlier filing date in the United States.**

"An application for patent for an invention disclosed in the manner provided by the first paragraph of section 112 of the title in an application previously filed in the United States, or as provided by section 363 of this title, which is filed by an inventor or inventors named in the previously filed application shall have the same effect, as to such invention, as though filed on the date of the prior application, if filed before the patenting or abandonment of or termination of proceedings on the first application or on an application similarly entitled to the benefit of the filing date of the first application and if it contains or is amended to contain a specific reference to the earlier filed application.

No application shall be entitled to the benefit of an earlier filed application under this section unless an amendment containing the specific reference to the earlier filed application is submitted at such time during the pendency of the application as required by the Director. The Director may consider the failure to submit such an amendment within that time period as a waiver of any benefit under this section. The Director may establish procedures, including the payment of a surcharge, to accept an unintentionally

delayed submission of an amendment under this section" (emphasis added by the examiner).

**2. MPEP 201.06 (c) 37 CFR 1.53(b) and 37 CFR 163(d) Divisional-  
Continuation Procedure [R-3]**

"(1) A continuation or divisional application that names as inventors the same or fewer than all of the inventors named in the prior application may be filed under this paragraph or paragraph (d) of this section" (emphasis added by the examiner).

The examiner notices that the parent application, 60/071,983, has **ONLY ONE** inventor, names Geoffrey B. Rhoads, but the pending application has **Eight** inventors, names: **Rodriguez, Tony F.; Reed, Alastair M.; Sharma, Ravi K.; Alattar, Osama M.; Hannigan, Brett T.; Levy, Kenneth L.; Brunk, Hugh L.; Rhoads, Geoffrey B.; Gustafson, Ammon E.**; which does not meet the 37 CFR 1.53(b) requirements.

**3. Remarks from applicant on 01/28/2008 states that**

"the Office has requested further information about the priority dates of the claims in the application and the parent patents supporting these priority dates.

Below is a listing of claims along with priority information. This information should not be construed as limiting. Applicants reserve the right to supplement and provide additional priority information as necessary.

Claim	Priority Application	Published Priority Patent including the subject matter
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		<b>from the priority application. The subject matter of these patents is incorporated by reference into the specification, and thus, deemed part of the specification.</b>
1	60/071,983, filed January 20, 1998.	6,636,615
2	60/071,983, filed January 20, 1998.	6,636,615
3	09/898,901, filed July 2, 2001.	6,721,440
4	60/071,983, filed January 20, 1998.	6,636,615
5	60/430,014, filed November 28, 2002.	(same material from 60/430,014 at pages 5-18 of the specification)
6	60/430,014, filed November 28, 2002.	(same material from 60/430,014 at pages 5-18 of the specification)
7	60/430,014, filed November 28, 2002.	(same material from 60/430,014 at pages 5-18 of the specification)
8	60/430,014, filed November 28, 2002.	same material from 60/430,014 at pages 5-18 of the specification) 09/074,034 issued as U.S. Patent 6,449,377.
9	See also line modulation in 09/074,034, filed May 6, 1998.	(same material from 60/430,014 at pages 5-18 of the specification)

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10	60/430,014, filed November 28, 2002.	(same material from 60/430,014 at pages 5-18 of the specification)
11	60/430,014, filed November 28, 2002.	(same material from 60/430,014 at pages 5-18 of the specification)
12	60/430,014, filed November 28, 2002.	(same material from 60/430,014 at pages 5-18 of the specification)
13	60/430,014, filed November 28, 2002.	(same material from 60/430,014 at pages 5-18 of the specification)
14	60/430,014, filed November 28, 2002.	6,636,615
15	60/071,983, filed January 20, 1998.	6,636,615
16	60/071,983, filed January 20, 1998.	6,636,615
17	60/071,983, filed January 20, 1998.	6,636,615
18	60/430,014, filed November 28, 2002. See also line modulation in 09/074,034, filed May 6, 1998.	same material from 60/430,014 at pages 5-18 of the specification) 09/074,034 issued as U.S. Patent 6,449,377
19	60/071,983, filed January 20, 1998.	6,636,615
20	60/071,983, filed January 20, 1998.	6,636,615
21	60/071,983, filed January 20, 1998.	6,636,615

The examiner notices that all independent claims are related to the parent application, or the first application, 60/071,983, but not the second application or third application, e.g. 10/012,703 and 09/898,901, and 60/071,983 is patented on 10/21/2003, which is earlier than the pending application filing date, 11/26/2003. The pending application fails to meet both conditions cited the above discussion. Thus, the pending application is **NOT** entitled to the benefit of the filing date of 01/20, 1998 of the first application.

4. The applicants have the opportunity to review and amend the claims to overcome the claim rejection presented in the previous office action. But no amendments have been made. Thus, the examiner maintains the same ground rejection to claims 1-21 discussed in the previous Action.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4, 14-17 and 19-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Zeller et al (Zeller) (US 7,054,461).



Zeller discloses a method **(e.g. an authentication system and related methods of Fig. 1, col 2, lines 20-65)** for analyzing an image of a printed object to determine whether the printed image is a copy or an original **(e.g. embed an auxiliary information into the image based on its attributes to degrade the responses to a copy operation of printing the object and then determine whether the object is a counterfeit, and the use of additional metrics can improve the ability of a digital watermark reader to detect copies of original images bearing fragile digital watermark, col 2, lines 44-55 & col 4, lines 6-34)**, the method comprising: determining whether a machine readable auxiliary signal **(e.g. bar codes, hologram and/or digital watermark)** is embedded in the image **(Fig. 1 discloses a process of detecting a copy by scanning the image, including digital watermark, the print quality processor measures one or more print quality metrics, the digital watermark decoder measures digital watermark metrics and the classifier analyzes all data to determine whether the document is a copy of an original print, col 5, line 56 through col 6, line 19)** wherein the auxiliary signal is embedded at embedding locations **(e.g. watermark at pixel locations)** using a set of two or more print structures **(e.g. black vs white block structure, (col 8, lines 13-16), contrast (col, 7, lines 31-44) and color, (col 10, line 55 through col 11, line 20))** that change in response to a copy operation **(e.g. changes to watermark or degradation of it can differentiate between an original and a copy, col 2, lines 4-15)**, the change causing a divergence or convergence of a characteristic of the print structures such that the machine readable signal becomes more or less detectable **(e.g. Zeller discloses changes of attributes,**

**including change of watermark, i.e. degradation, change or degradation of prints, ink or paper, image degradation that creates a blurring effect, or divergence effect and therefore less detectable, etc. col 2, lines 4-32 & col 9, lines 30-46);** and based on evaluating the machine readable auxiliary signal, determining whether the printed object is a copy or an original **(as discussed above, Zeller's system and associate methods determine whether the print object is a copy or an original, col 5, line 56 through col 6, line 45).**

Regarding claim 2.

Zeller discloses wherein the set of print structures include a first color (e.g. **black color**) and a second color (e.g. white color) that change differently in response to a copy operation (e.g. **image degradation creates blurring effect, col 2, lines 4-32, col 7, lines 44-67 & col 9, lines 30-46).**

Regarding claim 3.

Zeller discloses wherein at least one of the colors corresponds to an ink color (e.g. **black color**) that is out of gamut of a printer or scanner (e.g. **original image is scanned prior to print quality metrics measuring by print quality processor and watermark decoder. Thus the ink color must come out of gamut of a scanner, Fig. 1, col 5, lines 46 through col 6, line 45).**

Regarding claim 4.

Zeller discloses wherein a difference in luminance of the two colors changes in response to a copy operation (e.g. **image degradation from copy operation produce**

**blurring effect and therefore it must affect luminance, & contrast, etc. col 2, lines 4-32 & col 9, lines 30-46 & col 16, lines 25-42).**

Regarding claim 14.

Zeller discloses storage medium on which is stored instructions for performing the method of claim 1 (e.g. a system memory, such as computer-readable medium, etc. col 23, lines 45-55).

Regarding claim 15.

Zeller discloses a method (**e.g. an authentication system and related methods of Fig. 1, col 2, lines 20-65**) for creating an image to be printed on a printed object, the image being used to determine whether the printed image is a copy or an original (**e.g. embed an auxiliary information into the image based on its attributes to degrade the responses to a copy operation of printing the object and then determine whether the object is a counterfeit, and the use of additional metrics can improve the ability of a digital watermark reader to detect copies of original images bearing fragile digital watermark, col 2, lines 44-55 & col 4, lines 6-34**), the method comprising: embedding a machine readable auxiliary signal (**e.g. bar codes, hologram and/or digital watermark**) in the image (**Fig. 1 discloses a process of detecting a copy by scanning the image, including digital watermark, the print quality processor measures one or more print quality metrics, the digital watermark decoder measures digital watermark metrics and the classifier analyzes all data to determine whether the document is a copy of an original print, col 5, line 56 through col 6, line 19**), wherein the auxiliary signal is embedded

at embedding locations (e.g. **watermark at pixel locations**) using a set of two or more print structures (e.g. **black vs white block structure, (col 8, lines 13-16), contrast (col, 7, lines 31-44) and color, (col 10, line 55 through col 11, line 20)**) that change in response to a copy operation (e.g. **changes to watermark or degradation of it can differentiate between an original and a copy, col 2, lines 4-15**), the change causing a divergence or convergence of a characteristic of the print structures such that the machine readable signal becomes more or less detectable (e.g. **Zeller discloses changes of attributes, including change of watermark, i.e. degradation, change or degradation of prints, ink or paper, image degradation that creates a blurring effect, or divergence effect and therefore less detectable, etc. col 2, lines 4-32 & col 9, lines 30-46**); and creating a metric to detect the convergence or divergence from an image scanned of a suspect printed object to determine whether the suspect printed object is a copy or an original (e.g. **Zeller discloses to create print quality metrics to detect watermark degradation due to image scanning and coping operation; Fig. 1, col 2, lines 56-67**).

Regarding claim 16.

Zeller teaches a storage medium on which is stored instructions for performing the method of claim 15 (e.g. a system memory such as a computer-readable medium, col 23, lines 45-55).

Regarding claim 17.

The structure elements of method claim 1 perform all steps of method claim 17. Thus claim 17 is rejected under 102(e) for the same reason discussed in the rejection of claim 1.

Regarding claim 19.

The structure elements of method claim 14 perform all steps of method claim 19. Thus claim 19 is rejected under 102(e) for the same reason discussed in the rejection of claim 14.

Regarding claim 20.

The structure elements of method claim 15 perform all steps of method claim 20. Thus claim 20 is rejected under 102(e) for the same reason discussed in the rejection of claim 15.

Regarding claim 21.

The structure elements of method claim 16 perform all steps of method claim 21. Thus claim 21 is rejected under 102(e) for the same reason discussed in the rejection of claim 16.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**5. Claims 5, 11, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zeller et al (Zeller) (US 7,054,461) as applied to claim 1 above, and in view of Hayashi et al (Hayashi) (US 2001/0030759).**

Regarding claim 5.

Zeller does not explicitly teach the set of print structures include a first print structure having a first dot gain property and a second print structure having a second dot gain property; wherein the first print structure is more susceptible to dot gain than the second print structure in response to a copy operation.

Hayashi discloses an image processing apparatus for determining specific images, in that he teaches the set of print structures include a first print structure having a first dot gain property and a second print structure having a second dot gain property (e.g. **ink dot changes**, Figures 46 & 47, Pars. 0242-0245); wherein the first print structure is more susceptible to dot gain than the second print structure in response to a copy operation (**Figures 46 & 47, Pars. 0242-0245**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Zeller to include the set of print structures include a first print structure having a first dot gain property and a second print structure having a second dot gain property taught by Hayashi to reduce wasted processing time for electronic watermark extraction processing (Pars. 0010 & 0011).

With regard to claims 11, 12 & 13, Zeller differs from these claims, in that he does not teach that the evaluating includes evaluating a frequency domain metric to detect changes in the print structures; the frequency domain metric is a radial frequency

domain metric, and the frequency domain metric is used to evaluate changes in color of a print structure.

Hayashi teaches that the evaluating includes evaluating a frequency domain metric to detect changes in the print structures (**e.g. Hayashi discloses using Fast Fourier Transform and frequency domain for watermark extraction and evaluation, Figure 5, Par. 0150-0159**); the frequency domain metric is a radial frequency domain metric (Fig. 13 & **Par. 0299**), and the frequency domain metric is used to evaluate changes in color of a print structure (Figures 8A & 8B, Pars. 0451).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Zeller to include that the evaluating includes evaluating a frequency domain metric to detect changes in the print structures; the frequency domain metric is a radial frequency domain metric, and the frequency domain metric is used to evaluate changes in color of a print structure taught by Hayashi to reduce wasted processing time for electronic watermark extraction processing (Pars. 0010 & 0011).

**6. Claims 6-10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zeller et al (Zeller) (US 7,054,461) as applied to claims 1 and 17 above, and in view of Hilton et al (Hilton) (US 2004/0075869).**

Regarding claim 6.

Zeller does not explicitly teach a difference in luminance of the print structures changes in response to a copy operation due to a difference in susceptibility to dot gain of the print structures.

Hilton teaches that a difference in luminance of the print structures changes in response to a copy operation due to a difference in susceptibility to dot gain of the print structures {e.g. **light areas of picture can be used as Bitmorphs with a relatively low density of pixels, and heavy areas can use higher density Bitmorphs**} (Par. 0024).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Zeller to include a difference in luminance of the print structures changes in response to a copy operation due to a difference in susceptibility to dot gain of the print structures taught by Hilton to protect against falsification rather than copying and to have a conventional machine readable method of authentication (Par. 0039).

Regarding claim 7.

Zeller does not explicitly teach the set of print structures include a first print structure having a first aliasing property and a second print structure having a second aliasing property; wherein the first print structure aliases differently than the second print structure.

Hilton teaches that the set of print structures include a first print structure having a first aliasing property and a second print structure having a second aliasing property



(Figures 1-4, Par. 0058); wherein the first print structure aliases differently than the second print structure (Figures 1-4, Par. 0058).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Zeller to include the set of print structures include a first print structure having a first aliasing property and a second print structure having a second aliasing property taught by Hilton to protect against falsification rather than copying and to have a conventional machine readable method of authentication (Par, 0039).

With regard to claims 8, 9 & 10, Zeller differs from these claims, in that he does not teach that the auxiliary signal is embedded by varying continuity of line structures, wherein one print structure comprises a line segment in a first color, and another print structure comprises a line segment in another color, and the line segments of the different colors are arranged by varying between the first and second colors along a printed line.

Hilton teaches that the auxiliary signal is embedded by varying continuity of line structures (Figures 1-4, Par. 0057 & 58); a line segment in a first color, and another print structure comprises a line segment in another color (Par. 0064 & 0065), and the line segments of the different colors are arranged by varying between the first and second colors along a printed line (Par. 0064 & 0065).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Zeller to include the auxiliary signal is embedded by varying continuity of line structures, a line segment in a first color, and another print

structure comprises a line segment in another color taught by Hilton to protect against falsification rather than copying and to have a conventional machine readable method of authentication (Par, 0039).

Regarding claim 18.

The structure elements of method claim 8 perform all steps of method claim 18. Thus claim 18 is rejected under 103(a) for the same reason discussed in the rejection of claim 8.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Kau whose telephone number is 571-270-1120

and fax number is 571-270-2120. The examiner can normally be reached on Monday to Friday, from 8:30 am -5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Steven Kau/  
Examiner, Art Unit 2625  
12/13/2008

/David K Moore/  
Supervisory Patent Examiner, Art Unit 2625